



10> Jager, Dirk
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Knuth, Alexander
Old, Lloyd
Chen, Yao-tseng

<120> Isolated Nucleic Acid Molecules Encoding Cancer Associated Antigens,
the Antigens Per Se, and Uses Thereof

<130> LUD-5793.1

<140> US 10/729,340

<141> 2003-12-04

<150> US 60/430,869

<151> 2002-12-04

<150> US 10/181,663

<151> 2000-11-29

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<151> 2000-06-22

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aagcccaaca	gcaagcgctc	acggcggcag	cgcaacaacg	agaaccgtga	gaacgcgtcc	480
agcaaccacg	accacgacga	cggcgcctcg	ggcacaccca	aggagaagaa	ggccaagacc	540
tccaagaaga	agaagcgctc	caaggccaag	gcggagcgag	aggcgtcccc	tgccgacctc	600
cccatcgacc	ccaacgaacc	cacgtactgt	ctgtgcaacc	aggtctccta	tggggagatg	660
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cgacgagaag atccagatcg tgagccagat ggtggagctg gtggagaacc gcacgcggca 420
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Asn Val Ser Leu Met Arg Glu Ile Asp Ala Lys Tyr Gln Glu Ile Leu
35 40 45
Lys Glu Leu Asp Glu Cys Tyr Glu Arg Phe Ser Arg Glu Thr Asp Gly
50 55 60
Ala Gln Lys Arg Arg Met Leu His Cys Val Gln Arg Ala Leu Ile Arg
65 70 75 80
Ser Gln Glu Leu Gly Asp Glu Lys Ile Gln Ile Val Ser Gln Met Val
85 90 95
Glu Leu Val Glu Asn Arg Thr Arg Gln Val Asp Ser His Val Glu Leu
100 105 110
Phe Glu Ala Gln Gln Glu Leu Gly Asp Thr Val Gly Asn Ser Gly Lys
115 120 125
Val Gly Ala Asp Arg Pro Asn Gly Asp Ala Val Ala Gln Ser Asp Lys
130 135 140
Pro Asn Ser Lys Arg Ser Arg Arg Gln Arg Asn Asn Glu Asn Arg Glu
145 150 155 160
Asn Ala Ser Ser Asn His Asp His Asp Asp Gly Ala Ser Gly Thr Pro
165 170 175
Lys Glu Lys Lys Ala Lys Thr Ser Lys Lys Lys Lys Arg Ser Lys Ala
180 185 190
Lys Ala Glu Arg Glu Ala Ser Pro Ala Asp Leu Pro Ile Asp Pro Asn
195 200 205
Glu Pro Thr Tyr Cys Leu Cys Asn Gln Val Ser Tyr Gly Glu Met Ile
210 215 220
Gly Cys Asp Asn Asp Glu Cys Pro Ile Glu Trp Phe His Phe Ser Cys
225 230 235 240
Val Gly Leu Asn His Lys Pro Lys Gly Lys Trp Tyr Cys Pro Lys Cys
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 35 40 45
 Glu Leu Gly Asp Thr Val Gly Asn Ser Gly Lys Val Gly Ala Asp Arg
 50 55 60
 Pro Asn Gly Asp Ala Val Ala Gln Ser Asp Lys Pro Asn Ser Lys Arg
 65 70 75 80
 Ser Arg Arg Gln Arg Asn Asn Glu Asn Arg Glu Asn Ala Ser Ser Asn
 85 90 95
 His Asp His Asp Asp Gly Ala Ser Gly Thr Pro Lys Glu Lys Lys Ala
 100 105 110
 Lys Thr Ser Lys Lys Lys Lys Arg Ser Lys Ala Lys Ala Glu Arg Glu
 115 120 125
 Ala Ser Pro Ala Asp Leu Pro Ile Asp Pro Asn Glu Pro Thr Tyr Cys
 130 135 140
 Leu Cys Asn Gln Val Ser Tyr Gly Glu Met Ile Gly Cys Asp Asn Asp
 145 150 155 160
 Glu Cys Pro Ile Glu Trp Phe His Phe Ser Cys Val Gly Leu Asn His
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 Asn Arg
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 <213> Homo sapiens
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 Ala Leu Ile Arg Ser Gln Glu Leu Gly Asp Glu Lys Ile Gln Ile Val
 35 40 45
 Ser Gln Met Val Glu Leu Val Glu Asn Arg Thr Arg Gln Val Asp Ser
 50 55 60
 His Val Glu Leu Phe Glu Ala Gln Gln Glu Leu Gly Asp Thr Val Gly
 65 70 75 80

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Gln	Ser	Asp	Lys	Pro	Asn	Ser	Lys	Arg	Ser	Arg	Arg	Gln	Arg	Asn	Asn
		100						105					110		
Glu	Asn	Arg	Glu	Asn	Ala	Ser	Ser	Asn	His	Asp	His	Asp	Asp	Gly	Ala
	115						120					125			
Ser	Gly	Thr	Pro	Lys	Glu	Lys	Lys	Ala	Lys	Thr	Ser	Lys	Lys	Lys	Lys
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Arg	Ser	Lys	Ala	Lys	Ala	Glu	Arg	Glu	Ala	Ser	Pro	Ala	Asp	Leu	Pro
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Ile	Asp	Pro	Asn	Glu	Pro	Thr	Tyr	Cys	Leu	Cys	Asn	Gln	Val	Ser	Tyr
			165						170					175	
Gly	Glu	Met	Ile	Gly	Cys	Asp	Asn	Asp	Glu	Cys	Pro	Ile	Glu	Trp	Phe
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His	Phe	Ser	Cys	Val	Gly	Leu	Asn	His	Lys	Pro	Lys	Gly	Lys	Trp	Tyr
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Cys	Pro	Lys	Cys	Arg	Gly	Glu	Asn	Glu	Lys	Thr	Met	Asp	Lys	Ala	Leu
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 1976, 2022
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<211> 512

<212> PRT

<213> Homo sapiens

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35          40          45
Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln
50          55          60
Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr
65          70          75          80
Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Thr His Gln Lys Glu
85          90          95
Ile Asp Lys Ile Asn Gly Lys Leu Glu Glu Ser Pro Asp Asn Asp Gly
100         105         110
Phe Leu Lys Ala Pro Cys Arg Met Lys Val Ser Ile Pro Thr Lys Ala
115         120         125
Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu Lys
130         135         140
Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro Asn
145         150         155         160
Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Gln Met
165         170         175
Phe Pro Ser Glu Ser Lys Gln Lys Lys Val Glu Glu Asn Ser Trp Asp
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Ser Glu Ser Leu Arg Glu Thr Val Ser Gln Lys Asp Val Cys Val Pro
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Lys Ala Thr His Gln Lys Glu Met Asp Lys Ile Ser Gly Lys Leu Glu
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 Asp Ser Thr Ser Leu Ser Lys Ile Leu Asp Thr Val His Ser Cys Glu
 225 230 235 240
 Arg Ala Arg Glu Leu Gln Lys Asp His Cys Glu Gln Arg Thr Gly Lys
 245 250 255
 Met Glu Gln Met Lys Lys Lys Phe Cys Val Leu Lys Lys Lys Leu Ser
 260 265 270
 Glu Ala Lys Glu Ile Lys Ser Gln Leu Glu Asn Gln Lys Val Lys Trp
 275 280 285
 Glu Gln Glu Leu Cys Ser Val Arg Leu Thr Leu Asn Gln Glu Glu Glu
 290 295 300
 Lys Arg Arg Asn Ala Asp Ile Leu Asn Glu Lys Ile Arg Glu Glu Leu
 305 310 315 320
 Gly Arg Ile Glu Glu Gln His Arg Lys Glu Leu Glu Val Lys Gln Gln
 325 330 335
 Leu Glu Gln Ala Leu Arg Ile Gln Asp Ile Glu Leu Lys Ser Val Glu
 340 345 350
 Ser Asn Leu Asn Gln Val Ser His Thr His Glu Asn Glu Asn Tyr Leu
 355 360 365
 Leu His Glu Asn Cys Met Leu Lys Lys Glu Ile Ala Met Leu Lys Leu
 370 375 380
 Glu Ile Ala Thr Leu Lys His Gln Tyr Gln Glu Lys Glu Asn Lys Tyr
 385 390 395 400
 Phe Glu Asp Ile Lys Ile Leu Lys Glu Lys Asn Ala Glu Leu Gln Met
 405 410 415
 Thr Leu Lys Leu Lys Glu Glu Ser Leu Thr Lys Arg Ala Ser Gln Tyr
 420 425 430
 Ser Gly Gln Leu Lys Val Leu Ile Ala Glu Asn Thr Met Leu Thr Ser
 435 440 445
 Lys Leu Lys Glu Lys Gln Asp Lys Glu Ile Leu Glu Ala Glu Ile Glu
 450 455 460
 Ser His His Pro Arg Leu Ala Ser Ala Val Gln Asp His Asp Gln Ile
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<210> 18
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<210> 19

<211> 294

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Pro Arg Pro Ala Gly Pro Ala Arg Arg Gln Phe Gln Ala Ala Ser Leu
35 40 45
Leu Thr Arg Gly Trp Gly Arg Ala Trp Pro Trp Lys Gln Ile Leu Lys
50 55 60
Glu Leu Asp Glu Cys Tyr Glu Arg Phe Ser Arg Glu Thr Asp Gly Ala
65 70 75 80
Gln Lys Arg Arg Met Leu His Cys Val Gln Arg Ala Leu Ile Arg Ser
85 90 95
Gln Glu Leu Gly Asp Glu Lys Ile Gln Ile Val Ser Gln Met Val Glu
100 105 110
Leu Val Glu Asn Arg Thr Arg Gln Val Asp Ser His Val Glu Leu Phe
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Glu Asp Ile His Gly Ile Thr Ala Glu Arg Tyr Ala Ala Ala Arg Gly
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Ala	His	Gln	Lys	Glu	Ile	Asp	Lys	Ile	Asn	Gly	Lys	Leu	Glu	Gly	Ser
705					710					715					720
Pro	Val	Lys	Asp	Gly	Leu	Leu	Lys	Ala	Asn	Cys	Gly	Met	Lys	Val	Ser
			725						730					735	
Ile	Pro	Thr	Lys	Ala	Leu	Glu	Leu	Met	Asp	Met	Gln	Thr	Phe	Lys	Ala
		740						745					750		
Glu	Pro	Pro	Glu	Lys	Pro	Ser	Ala	Phe	Glu	Pro	Ala	Ile	Glu	Met	Gln
		755					760					765			
Lys	Ser	Val	Pro	Asn	Lys	Ala	Leu	Glu	Leu	Lys	Asn	Glu	Gln	Thr	Leu
	770					775					780				
Arg	Ala	Asp	Glu	Ile	Leu	Pro	Ser	Glu	Ser	Lys	Gln	Lys	Asp	Tyr	Glu
785					790					795					800
Glu	Ser	Ser	Trp	Asp	Ser	Glu	Ser	Leu	Cys	Glu	Thr	Val	Ser	Gln	Lys
			805						810					815	
Asp	Val	Cys	Leu	Pro	Lys	Ala	Thr	His	Gln	Lys	Glu	Ile	Asp	Lys	Ile
		820						825					830		
Asn	Gly	Lys	Leu	Glu	Glu	Ser	Pro	Asp	Asn	Asp	Gly	Phe	Leu	Lys	Ala
		835					840					845			
Pro	Cys	Arg	Met	Lys	Val	Ser	Ile	Pro	Thr	Lys	Ala	Leu	Glu	Leu	Met
	850					855					860				
Asp	Met	Gln	Thr	Phe	Lys	Ala	Glu	Pro	Pro	Glu	Lys	Pro	Ser	Ala	Phe
865					870					875					880
Glu	Pro	Ala	Ile	Glu	Met	Gln	Lys	Ser	Val	Pro	Asn	Lys	Ala	Leu	Glu
			885						890					895	
Leu	Lys	Asn	Glu	Gln	Thr	Leu	Arg	Ala	Asp	Gln	Met	Phe	Pro	Ser	Glu
		900						905					910		
Ser	Lys	Gln	Lys	Lys	Val	Glu	Glu	Asn	Ser	Trp	Asp	Ser	Glu	Ser	Leu

915	920	925
Arg Glu Thr Val Ser Gln Lys Asp Val Cys Val Pro Lys Ala Thr His		
930	935	940
Gln Lys Glu Met Asp Lys Ile Ser Gly Lys Leu Glu Asp Ser Thr Ser		
945	950	955
Leu Ser Lys Ile Leu Asp Thr Val His Ser Cys Glu Arg Ala Arg Glu		
965	970	975
Leu Gln Lys Asp His Cys Glu Gln Arg Thr Gly Lys Met Glu Gln Met		
980	985	990
Lys Lys Lys Phe Cys Val Leu Lys Lys Lys Leu Ser Glu Ala Lys Glu		
995	1000	1005
Ile Lys Ser Gln Leu Glu Asn Gln Lys Val Lys Trp Glu Gln Glu Leu		
1010	1015	1020
Cys Ser Val Arg Leu Thr Leu Asn Gln Glu Glu Glu Lys Arg Arg Asn		
1025	1030	1035
Ala Asp Ile Leu Asn Glu Lys Ile Arg Glu Glu Leu Gly Arg Ile Glu		
1045	1050	1055
Glu Gln His Arg Lys Glu Leu Glu Val Lys Gln Gln Leu Glu Gln Ala		
1060	1065	1070
Leu Arg Ile Gln Asp Ile Glu Leu Lys Ser Val Glu Ser Asn Leu Asn		
1075	1080	1085
Gln Val Ser His Thr His Glu Asn Glu Asn Tyr Leu Leu His Glu Asn		
1090	1095	1100
Cys Met Leu Lys Lys Glu Ile Ala Met Leu Lys Leu Glu Ile Ala Thr		
1105	1110	1115
Leu Lys His Gln Tyr Gln Glu Lys Glu Asn Lys Tyr Phe Glu Asp Ile		
1125	1130	1135
Lys Ile Leu Lys Glu Lys Asn Ala Glu Leu Gln Met Thr Leu Lys Leu		
1140	1145	1150
Lys Glu Glu Ser Leu Thr Lys Arg Ala Ser Gln Tyr Ser Gly Gln Leu		
1155	1160	1165
Lys Val Leu Ile Ala Glu Asn Thr Met Leu Thr Ser Lys Leu Lys Glu		
1170	1175	1180
Lys Gln Asp Lys Glu Ile Leu Glu Ala Glu Ile Glu Ser His His Pro		
1185	1190	1195
Arg Leu Ala Ser Ala Val Gln Asp His Asp Gln Ile Val Thr Ser Arg		
1205	1210	1215
Lys Ser Gln Glu Pro Ala Phe His Ile Ala Gly Asp Ala Cys Leu Gln		
1220	1225	1230
Arg Lys Met Asn Val Asp Val Ser Thr Ile Tyr Asn Asn Glu Val		
1235	1240	1245
Leu His Gln Pro Leu Ser Glu Ala Gln Arg Lys Ser Lys Ser Leu Lys		
1250	1255	1260
Ile Asn Leu Asn Tyr Ala Gly Asp Ala Leu Arg Glu Asn Thr Leu Val		
1265	1270	1275
Ser Glu His Ala Gln Arg Asp Gln Arg Glu Thr Gln Cys Gln Met Lys		
1285	1290	1295
Glu Ala Glu His Met Tyr Gln Asn Glu Gln Asp Asn Val Asn Lys His		
1300	1305	1310
Thr Glu Gln Gln Glu Ser Leu Asp Gln Lys Leu Phe Gln Leu Gln Ser		
1315	1320	1325
Lys Asn Met Trp Leu Gln Gln Gln Leu Val His Ala His Lys Lys Ala		
1330	1335	1340
Asp Asn Lys Ser Lys Ile Thr Ile Asp Ile His Phe Leu Glu Arg Lys		
1345	1350	1355
Met Gln His His Leu Lys Glu Lys Asn Glu Glu Ile Phe Asn Tyr		
1365	1370	1375

Asn Asn His Leu Lys Asn Arg Ile Tyr Gln Tyr Glu Lys Glu Lys Ala
1380 1385 1390
Glu Thr Glu Asn Ser
1395